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ABSTRACT

A method for determining the ambient concentrations of a plurality of analytes in a liquid sample of volume V litres, comprises

C2 loading a plurality of different binding agents, each being capable of binding specifically and reversibly an analyte of interest onto a support means at a plurality of spaced apart locations such that not more than  $0.1 V/K$  moles of each binding agent are present at any location, where K litres/mole is the equilibrium constant of each such binding agent;

contacting the loaded support means with the sample to be analyzed, such that each of the spaced apart locations is contacted in the same operation with the sample, the amount of sample liquid being such that only an insignificant proportion of any analyte present in the sample becomes bound to the binding agent specific for it, and

measuring a parameter representative of the fractional occupancy by the analytes of the binding agents at the spaced apart locations by a competitive or non-competitive assay technique, using a labelled site-recognition reagent for each binding agent capable of recognizing either the unfilled binding sites or the filled binding sites on the binding agent, which enables the amount of said reagent in the particular location to be measured. A device and kit for use in the method are also provided.

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